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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,548

07/18/2005

Alexander Zernickel

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EXAMINER

PILKINGTON, JAMES

ART UNIT

PAPER NUMBER

3682

MAIL DATE

DELIVERY MODE

05/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,548	Applicant(s) ZERNICKEL ET AL.	
	Examiner JAMES PILKINGTON	Art Unit 3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/18/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the back pressure face must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.84(l). The lines, numbers and letters are not uniformly thick and well defined, clean, durable and black (poor line quality). Appropriate correction is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-14 and 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1 and 13 recite the limitations of "back pressure face" and "bearing faces on the third side." The specification does not disclose these features in a way which would allow one of ordinary skill in the art to make or use the device. Where are the "back pressure face" and the "bearing faces on the third side"?

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. The claims are replete with grammatical errors and indefinite language to numerous to list in their entirety. What follows are a few examples. The examiner suggests rewriting the claims to correct for grammatical errors and indefinite language.

Claims 1 and 13 recites the limitation "bearing faces on the third side" in line 11 and 8. There is insufficient antecedent basis for this limitation in the claim. It is also not clear what these bearing faces are or where they are located.

Claim 1 line 16 recites the limitation "having two of the bearing faces." There is a lack of antecedent basis for such a limitation since there is not prior disclosure for the pressure piece having any bearing faces.

Claim 1 line 18 recites "at each bearing face." It is not clear to which bearing face the Applicant is referencing. Which of the 5 bearing faces disclosed up to this point in the claim is the Applicant referencing?

Claim 1 line 22 recites "respective pressure piece." One pressure piece has been claimed prior to this limitation, is the Applicant now trying to claim an addition pressure piece?

Claim 1 line 22-23 recites "respective pressure piece so as to rotate with and the other rotatable runner plate." It is not understood what the Applicant is attempting to claim. What components are rotating and which are fixed?

Claim 1 recites the limitation "the other rotatable runner plate" in line 23. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 line 24 recites "with respect to the bearing face." Which bearing face is the Applicant referencing in this limitation?

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6 and 8-22, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams, USP 6,736,021, in view of Zernick, USP 6,948,401 (published as WO 02/064989 on 8/22/02).

Adams discloses a rack and pinion steering system comprising:

- A pinion (26) having an axis and having a first contact surface around the axis (the gear teeth 32)
- A rack (34) having a longitudinal direction across the axis of the pinion (26) and the rack being mounted to be displaceable along the longitudinal direction thereof
- The rack (34) having a second contact surface (teeth 38) that engages the first contact surface (32)
- The rack (34) having a prismatic form including two bearing faces (50 and 52) which are inclined at an angle to the engagement of the first and second contact surfaces (32 and 38) and being symmetrical with respect to the first contact surface along the axis
- The rack (34) having a third side (48) opposite the second contact surface (38)
- A pressure piece (56) arranged on the third side (48) of the rack, the pressure piece (56) having a back pressure face which rolls without sliding on the bearing faces on the third side of the rack (34), the pressure pieces

(56) being prestressed by a spring (58) in the axial direction against the rack, the pressure piece having two bearing faces (opposite 50 and 52) which lie generally opposed to one another and are inclined with respect to one another

- At least one bearing member (154 and 156) on each bearing face
- Wherein the rack has a generally Y-shaped profile (see figure 1)
- Wherein the pressure piece (56) has a blind hole/through hole (80) for the bearing member (154 and 156)
- Wherein the rack (34) has a longitudinal recess (cutout forming bearing faces 50 and 52)

Adams does not disclose that the bearing member is an axial roller bearing comprising to space apart runner plates and a rolling body set situated between the runner plates, one runner plate of each axial roller bearing being held in the pressure piece, the other rotatable runner plate of the bearing extending inclined at an angle with respect to the bearing face, the angle defining a contact point that is less than the entire width of the runner plate, wherein the rotatable runner plate has a spherical cap configuration having a convex spherical cap face in punctiform contact with the bearing face of the rack, wherein the axial roller bearing is a ball bearing or a needle bearing, wherein the fixed runner plate is configured as a sleeve having an edge which engages around the roller plate of the spherical cap forming a retaining element, wherein the rotatable runner plate has a mushroom-shaped configuration including a

stem and a convex spherical cap face, a sleeve accommodating the stem and a needle ring which surrounds the stem and sleeve has an axially oriented projection.

Zernickel teaches a bearing member that is an axial roller bearing (3) comprising to space apart runner plates (6 and 7 or the equivalent in the additionally disclosed species) and a rolling body set (8) situated between the runner plates (6 and 7), one runner plate (7) of each axial roller bearing being held in the pressure piece (2), the other rotatable runner plate (6) of the bearing extending inclined at an angle with respect to the bearing face (at point contact 10), the angle defining a contact point (10) that is less than the entire width of the runner plate (6), wherein the rotatable runner plate (6) has a spherical cap configuration having a convex spherical cap face in punctiform contact (at 10) with the bearing face, wherein the axial roller bearing is a ball bearing (rollers 8 are balls) or a needle bearing (Figures 4 or 5 character 19), wherein the fixed runner plate (7, 17 or 21) is configured as a sleeve having an edge (end of open side of the plate) which engages around the roller plate of the spherical cap forming a retaining element, wherein the rotatable runner plate (6, see Figure 5) has a mushroom-shaped configuration including a stem (20) and a convex spherical cap face (6), a sleeve (21) accommodating the stem (20) and a needle ring (19) which surrounds the stem (20) and the sleeve has an axially oriented projection (23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the bearing assembly of Adams with the bearing assembly of Zernickel to achieve the predictable result of providing a bearing assembly which reduces the friction between the rack and the pressure piece.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adams '021 in view of Zernickel '401 and further in view of Eck, USP 3,433,543.

Adams in view of Zernickel discloses all of the claim limitations as applied above.

Adams in view of Zernickel does not disclose that the needles in the bearing are held in a cage.

Eck teaches a needle bearing having needles (4) held in a cage (3) for the purpose of providing a bearing that can accommodate a small swinging movement of the parts without the occurrence of pitting (C1/L35-58).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Adams in view of Zernickel and provide a cage for supporting the needles in the bearing, as taught by Eck, for the purpose of providing a bearing that can accommodate a small swinging movement of the parts without the occurrence of pitting.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is

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(571)272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. P./
Examiner, Art Unit 3682
5/1/08

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3682